First Record of the Eyeshade Sculpin *Nautichthys pribilovius* (Hemitripteridae: Pisces) from the East Sea, Korea

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Abstract

A new record of the eyeshade sculpin *Nautichthys pribilovius* is described on the basis of a single specimen collected from the East Sea, Korea. The species has 23 second dorsal fin rays, rounded spines on the occiput, a black band through the eye and across the cheek, branched caudal fin rays and a branchiostegal membrane attached to the isthmus. The new Korean name “Gum-eun-tti-nun-hoe-t-dae-sok” is proposed for the genus *Nautichthys*, and “Gum-eun-tti-nun-hoe-t-dae” is proposed for the species *N. pribilovius*.

Key words: *Nautichthys pribilovius*, First record, Hemitripteridae, East Sea, Korea.

Introduction

The Hemitripteridae, of the order Scorpaeniformes, consists of eight species and three genera worldwide (*Hemitripterus, Blepsia, Nautichthys*) (Nelson, 2006), four species and three genera in Japan (Nakabo, 2002), and three species and two genera in Korea (Kim et al., 2005; Kim, 2011). Members of the family, which is characterized by having minute spines covering the body, no basihyal, and no anal fin spines (Nelson, 2006), inhabit shallow waters on continental shelves in the northwestern Atlantic and North Pacific oceans (Kim et al., 2005; Mecklenburg et al., 2011). Among the Hemitripteridae, the genus *Nautichthys* has been poorly studied, with the exception of Yabe (1985), who stated that this genus is clearly distinguished from other two genera in the family by having branched caudal fin rays and a branchiostegal membrane attached to the isthmus. Worldwide, the genus *Nautichthys* consists of three species: *N. pribilovius* (Jordan and Gilbert, 1898), *N. oculofasciatus* (Girard, 1858), and *N. robustus* (Peden, 1970), which are clearly distinguished by the number of dorsal fin rays.

During a survey of the fish fauna in the East Sea, a single specimen belonging to the genus *Nautichthys* was collected. The description of the specimen collected and its identification as *N. pribilovius* are in good agreement with previous descriptions of the species (Peden, 1970; Yebe et al., 1983; Jordan and Evermann, 1898; Nakabo, 2002). This species has not been reported previously from Korea. In this study, we describe its morphological characteristics and provide a new Korean name for the species *Nautichthys pribilovius*.

Methods and Materials

In March 2013, a single specimen of *Nautichthys pribilovius* was collected between 35-50 m depth by a set net in Sokcho, Korea. The specimen was preserved in 10% formalin and then in 70% ethanol. Counts and measurements were performed according to Hubbs and Lagler (1964). The specimen is catalogued in the National Institute of Biological Resources.
rounded. Body covered with minute spines. Diagonal black band present through the eye and across cheek. Branchiostegal membranes attached to the isthmus (Girard, 1858; Eschmeyer and Herald, 1983; Yabe, 1985).

**Nautichthys pribilovius** (Jordan and Gilbert, 1898) (Table 1, Fig. 1)

(NIBR), Korea.

**Results and Discussion**

**Nautichthys Girard, 1858**

(new Korean genus name: Geom-eun-tee-nun-hoeot-dae-sok)

*Nautichthys* Girard, 1858: 74 (type species: *Blepsias oculus-fasciatus* Girard, 1858).

Upper surface of head spinous. Mouth moderate; the jaws subequal; teeth on jaws, vomer and palatines. Dorsal fins contiguous at their base; first one shorter than the second. Three soft rays on pelvic fin. Caudal fin rays branched; caudal fin

<table>
<thead>
<tr>
<th>Characters</th>
<th>Present study</th>
<th>Jordan and Evermann (1898)</th>
<th>Yabe et al. (1983)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard length (mm)</td>
<td>63.5</td>
<td>60.0</td>
<td>17.0-67.8</td>
</tr>
<tr>
<td></td>
<td>(n = 1)</td>
<td>(n = 1)</td>
<td>(n = 10)</td>
</tr>
<tr>
<td>Dorsal fin rays</td>
<td>VIII-23</td>
<td>VIII-23</td>
<td>VIII-IX-22-26</td>
</tr>
<tr>
<td>Anal fin rays</td>
<td>15</td>
<td>15</td>
<td>16-19</td>
</tr>
<tr>
<td>Pectoral fin rays</td>
<td>16</td>
<td>15</td>
<td>14-16</td>
</tr>
<tr>
<td>Pelvic fin rays</td>
<td>1.3</td>
<td>-</td>
<td>1.3</td>
</tr>
<tr>
<td>Lateral line pores</td>
<td>40</td>
<td>39</td>
<td>37-40</td>
</tr>
<tr>
<td>Vertebrae</td>
<td>38</td>
<td>-</td>
<td>37-38</td>
</tr>
<tr>
<td>Standard length (%)</td>
<td>33.5</td>
<td>33.3</td>
<td>30.3-35.7</td>
</tr>
<tr>
<td>Head length (%)</td>
<td>29.3</td>
<td>27.8</td>
<td>21.7-27.0</td>
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<tr>
<td>Body depth</td>
<td>21.6</td>
<td>-</td>
<td>28.6-32.3</td>
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<tr>
<td>Predorsal length</td>
<td>53.9</td>
<td>-</td>
<td>43.5-55.6</td>
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<td>Preanal length</td>
<td>11.7</td>
<td>-</td>
<td>11.2-15.9</td>
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<tr>
<td>Caudal peduncle length</td>
<td>8.8</td>
<td>-</td>
<td>7.9-9.5</td>
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<tr>
<td>Caudal peduncle depth</td>
<td>19.7</td>
<td>-</td>
<td>20.4-31.3</td>
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<td>Snout length</td>
<td>40.3</td>
<td>30.8</td>
<td>25.0-33.3</td>
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<tr>
<td>Orbit length (%)</td>
<td>33.3</td>
<td>-</td>
<td>41.7</td>
</tr>
</tbody>
</table>

**Material examined**

NIBR-0000020388, one specimen, 63.5 mm in standard length (SL), Sokcho-si, Gangwon-do, Korea, 11 Mar, 2013, collected by Yeon-Soo Jung, 35-50 m depth, set net.

**Description**

Counts and measurements are given in Table 1. Dorsal fin rays, III-23; anal fin rays, 15; pectoral fin rays, 16; pelvic fin rays, I, 3. Body proportions, expressed as percentages of SL: head length, 33.5; body depth, 29.3; predorsal length, 21.6; preanal length, 53.9; caudal peduncle length, 11.7; caudal peduncle depth, 8.8.

Body deep and compressed; eye large; interorbital space narrow and deeply concave; interorbital length ~30% of eye diameter; upper margin of orbit protruding well above dorsal profile of head as a blunt triangular ridge; dorsal origin elevated; branchiostegal membranes attached to the isthmus; the gill slit extending a little below the lower edge of the pectoral fin; nasal spine present; large multiple filament on upper part of each eye; slender filament present on nasal base, lower margin of suborbital and posterior end of maxillaries; posterior end of maxillaries reaching to the middle of the eye; teeth on jaws, vomer and palatines; four preopercular spines, short and blunt;
the lateral line noticeable, lateral line plates with short spines directed backward; dorsal fins separate, the first dorsal spine highest; the posterior end of pectoral fin reaching to the ninth soft ray of the second dorsal fin and passing the origin of anal fin; minute spines covering the body, except for the pectoral axilla, anterior region of anal origin, jaws, and ventral face of head; caudal fin rays branched.

**Coloration**
When fresh, head and body yellowish brown, ventral body white, three dark bands present below the soft dorsal fin rays; black band present through the eye and across cheek, extending onto branchiostegal membranes and isthmus; first dorsal fin dusky, first dorsal spine very dark; second dorsal, anal, and pectoral fins dotted; caudal fin faint yellowish brown, with a line across base of caudal fin and a broader line across caudal fin towards its tip. After alcohol fixation, head and body pale brown. Three dark bands present below dorsal soft rays; two ambiguous dark bands present below dorsal spines; noticeable dark band present through the eye and across cheek; first dorsal fin dark, and other fins dotted, except for pelvic fin; caudal fin with faint dark lines across at its base and posterior.

**Distribution**
Known from the Bering Sea, northern Okhotsk Sea, west coast of Sakhalin, the northern East Sea, Arctic Ocean (Neylov, 1976; Mecklenburg et al., 2011) and the East Sea, Korea (the present study).

**Remarks**
Based on the meristic characters (Table 1), our single specimen clearly matches *N. pribilovius*, by comparison with the original description (Jordan and Evermann, 1898) and other comparative data (Peden, 1970; Yabe et al., 1983). However, we found some differences between our specimen and *N. pribilovius* in term of morphometric characteristics, such as body depth, predorsal length and orbit length (see Table 1). These differences suggest that geographic variation may be present within the species, especially in relation to body shape. A more precise delineation of the population and species characteristics will require detailed morphological and molecular studies of geographic populations of *N. pribilovius*. According to Peden (1970), *N. pribilovius* and *N. robustus* are well distinguished from *N. octolophus* by having fewer second dorsal fin rays, and *N. pribilovius* is distinguished from *N. robustus* by having rounded spines on the operculum and a larger number of second dorsal fin rays (22-26 in *N. pribilovius* vs. 19-21 in *N. robustus*). The present specimen has rounded spines on the operculum and 23 second dorsal fin rays. We propose the new Korean name ‘Geom-eun-tti-nun-hoet-dae-sok’ for the genus *Naucithys*, and ‘Geom-eun-tti-nun-hoet-dae’ for the species *N. pribilovius*.

**Acknowledgements**
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**References**